Editorial: Special Issue on “TeleHomeCare” and “Strategic Vision for Future Wireless Communication”

Ramjee Prasad

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This special issue is based on the contributions from two workshops: the third CTIF Annual Workshop (CAW) held from 6–7 May 2008 and also from the Second Joint NICT-CTIF Workshop held from 26–27 June 2008 in Aalborg, Denmark.

A positive trend seen from both the society and economic aspects is that the patients generally prefer to be treated in their homes. This creates a need for the use of devices in telehomecare in relation to more serious health problems and also in prevention of the development of diseases. Healthcare can be defined from two perspectives. First is the development and application of ambient intelligence technologies for healthcare, health and disease management. Second, it seeks to make healthcare available to anyone, anytime, and anywhere by removing location, time and other restraints while increasing both the secure accessible and affordable healthcare. The workshops bring together the latest technical research results on telehomecare and also discuss the strategic vision for the future wireless communications.

TeleHomeCare and Strategic Vision for Future Wireless Communication are very significant concepts for the growth of future wireless communication technologies. These concepts have been very well explained in the following nine papers selected from the Third CTIF Annual Workshop (CAW) 2008 and also in the last four papers selected from the Second Joint NICT-CTIF Workshop 2008 which are published in this special issue.

The first paper, “*Wireless Aspects of Telehealth*”, by Aravind Kailas and Mary Ann Ingram, addresses recent efforts in the field of telehomecare including standards, system architectures, propagation models and lower layer protocols for body area networks and also suggests the use of cooperative transmission based strategies for such wireless topologies.

The second paper, “*Transdisciplinarity of Smart Health Care: Transmedical E-evolution*”, by Dina Simunic and Marijan Djurek, discusses the aspects of modern health care

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R. Prasad (✉)
Aalborg University, Aalborg, Denmark
e-mail: prasad@es.aau.dk

transdisciplinarity which includes scientific domains such as biomedicine and molecular biosciences, social sciences and information and communications technologies.

The third paper, “*Wireless Body Area Network Combined with Satellite Communication for Remote medical and Healthcare Applications*”, by Huan-Bang Li, Takashi Takahashi, Masahiro Toyoda, Yasuyuki Mori and Ryuji Kohno, presents a prototype WBAN system implemented using UWB technology using multi hop mechanism. Also an experimental system using the developed WBAN combined with satellite communication supporting remote medical treatment and healthcare has been described.

The fourth paper, “*Telehomecare challenge collaboration among healthcare professionals*”, by Birthe Dinesen and Egon Toft, identifies the organisational problems which emerge when telehomecare technology for heart patients is implemented across healthcare sectors. Important issues that should be considered while implementing wireless telehomecare technology have been highlighted.

The fifth paper “*High performance, low-dose radiography systems for space and remote site applications*”, by Lorenzo Natalucci, Pietro Ubertini, Angela Bazzano, Ezio Caroli, Memmo Federici, Egidio Quadrini and Roberto Vittori discusses the possible use of imaging instrumentation based on solid state detectors with special regard to CdZnTe pixel devices which also allows image diagnostic to be performed at much lower doses compares to the current plate based radiographic techniques.

The sixth paper, “*The Citizen as Co-producer of Health—the Need for “Infusion of Medicine into Technology” in Future Application of Information and Communication Technology in Health*”, by Niels Boye, introduces the term technology augmented health with the paradigm of ambient assisted living. It is expected to provide citizens with knowledge and response ability in relation to exogenous and endogenous factors of life.

The seventh paper, “*Health Care on Grassroot Level. An idea in its infancy*”, by Leif Dierks and Ole Brun Madsen focuses on developing programmes related to health awareness issues and aims at changing the health practices of people living in small villages and communities through information given in a relaxed context.

The eighth paper titled “*Personal Networks for Health Care Providers*”, by Rune Roswal and Iwona Windekildel examines implications of personal networks on existing business model and business strategies for the health care sector.

The ninth paper, “*AGE@HOME: Radio-enabled environments for independent ageing*”, by Lara Srivastava and Damir Zrno, proposes a home wireless platform for the elderly and presents an early prototype of a digital home and also a new decision-support system for behavior monitoring.

The tenth paper titled, “*FM-UWB for Communications and Radar in Medical Applications*”, by Ernestina Cianca and Bharat Gupta, addresses the integration of sensing and communication using FM-UWB and radar technology such that a single device can be obtained for two different operational modes. The use of FM-UWB as radar for biomedical applications such as non-invasive heart and respiration rate monitoring has been shown.

The eleventh paper, “*Requirements on Next Generation Social Networking—a user’s perspective*”, by Lene Sørensen and Knud Erik Skouby, discusses general perceived user requirements to the next generation social networks and presents results for an empirical survey of perceived user requirements to social networks from a group of ICT experts.

The twelfth paper, “*MAC Enhancement for High Speed Communications in 802.15.3c mmWave-WPAN*”, by Chang Woo Pyo, Zhou Lan, Fumihide Kojima, Junyi Wang, Hiroshi Harada and Shuzo Kato proposes MAC for mmWave wireless system which solves the problems of existing MAC and provides high quality of service.

The last paper, “*Antenna Composition and Technology for Cognitive Wireless Systems*”, by Kyoichi Iigusa and Hiroshi Harada describes the antenna compositions and antenna technologies required to realize a cognitive wireless system.

Author Biography

Ramjee Prasad is currently the Director of Center for Teleinfrastruktur (CTIF), and holds the chair of wireless information and multimedia communications. He is the project leader of several international, industrially and European Commission funded projects. He has published over 700 technical papers, contributed to several books, and has authored, coauthored, and edited over thirty books. His latest book is “*Introduction to Ultra Wideband for Wireless Communications*”. Prof. Prasad has served as a member of the advisory and program committees of several IEEE international conferences. He has also presented keynote speeches, and delivered papers and tutorials on WPMC at various universities, technical institutions, and IEEE conferences. He was also a member of the European cooperation in the scientific and technical research (COST-231) project dealing with the evolution of land mobile radio (including personal) communications as an expert for The Netherlands, and he was a member of the COST-259 project. He was the founder and chairman of the IEEE Vehicular Technology/Commu-

nications Society Joint Chapter, Benelux Section, and is now the honorary chairman. In addition, Prof. Prasad is the founder of the IEEE Symposium on Communications and Vehicular Technology (SCVT) in the Benelux, and he was the symposium chairman of SCVT’93. Presently, he is the Chairman of IEEE Vehicular Technology/Communications/Information Theory/Aerospace and Electronics Systems/Society Joint Chapter, Denmark Section. In addition, Prof. Prasad is the coordinating editor and editor-in-chief of the *Springer International Journal on Wireless Personal Communications*. He was the technical program chairman of the PIMRC’94 International Symposium held in The Hague, The Netherlands, from September 19–23, 1994 and also of the Third Communication Theory Mini-Conference in Conjunction with GLOBECOM’94, held in San Francisco, California, from November 27–30, 1994. He was the conference chairman of the fiftieth IEEE Vehicular Technology Conference and the steering committee chairman of the second International Symposium WPMC, both held in Amsterdam, The Netherlands, from September 19–23, 1999. He was the general chairman of WPMC’01 which was held in Aalborg, Denmark, from September 9–12, 2001, and of the first International Wireless Summit (IWS 2005) held also in Aalborg, Denmark on September 17–22, 2005. He was the General Chair of the First International Conference on Wireless Communication, Vehicular Technology, Information Theory and Aerospace & Electronic Systems Technology (Wireless VITAE) held on May 17–20, 2009 in Aalborg. Prof. Prasad was also the founding chairman of the European Center of Excellence in Telecommunications, known as HERMES and now he is the honorary chairman. He is a fellow of IEEE, a fellow of IETE, a fellow of IEE, a member of The Netherlands Electronics and Radio Society (NERG), and a member of IDA (Engineering Society in Denmark). Prof. Prasad is advisor to several multinational companies. He has received several international awards, including the “Telenor Nordic 2005 Research Prize” (website: <http://www.telenor.no/om/>).